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ABSTRACT

The body of recent prescriptive literature on teaching was analyzed to develop a conceptual model for ordering prescriptive thought about teaching, imposing a rational order on diverse extant frameworks for viewing teaching. Seven existing schemata for ordering thought about teaching were summarized. Three dimensions of the teaching-learning process were identified and a question formulated from each for use as criteria for comparing the various formulations found in the literature. The three dimensions are 1) the learning: What is the nature of the learner? 2) the teaching-learning situation: How should teaching proceed? and 3) the goal: What should be the outcome of teaching? The taxonomic category system generated consists of the following four frameworks: 1) Teaching as Self-enhancement; 2) Teaching as Intellectual Achievement; 3) Teaching as Technology; and 4) Teaching as the Management of Contingencies. (A two-page bibliography is included with the description of each of the four positions.) (JS)

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THE CONCEPTUALIZATION OF PRESCRIPTIONS FOR TEACHING

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(Presented at AERA Annual Meeting,
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INTENT OF THE INQUIRY

> One does not discover by observation what teaching is. Rather he decides how he wants to conceive of teaching--what he wants to call by the term teaching and/or what conditions have to be met before he is willing to say that teaching is taking place. In short, a concept of teaching is a theoretical construct, not an observed phenomenon. (Henderson, 1965, p. 384).

The above statement by Henderson implies that any attempt to deal systematically with the concept of teaching is bound to be a complex effort. The real-life referent for the concept "teaching" is considered to be so multiform and various that precise definition of the act is, perhaps, an unattainable goal. An examination of current literature on the nature of instruction yields a welter of different recommendations, prescriptions, suggestions, and pleadings regarding how teaching ought to proceed. The present conceptual inquiry seeks to provide a schema or cateogry system for ordering a large portion of these diverse formulations.

Existing Frameworks for Considering Teaching

A number of schemata for ordering thought about teaching appear in the literature of education. Understanding their nature will provide a context into which the framework advanced herein can then be fitted. Seven of these

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are summarized below. An assumption is made that the reader is familiar with the vocabulary employed, at least generally, by the authors of these conceptions; consequently, only minimal elaboration is made beyond the names of the categories identified. (If further elaboration is desired, see List of References at end of the paper.)

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Gage (1963, 1964) has suggested the following framework, based on families of learning theory:

1. Teaching as Conditioning
2. Teaching as Identification (Model-providing)
3. Teaching as Cognitive Restructuring

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De Cecco (1968) has categorized seven "models of teaching":

1. Basic Teaching Model
2. Computer-Based Teaching Model
3. Model for School Learning
4. An Interaction Model
5. The Socratic Model
6. The Jesuit or Classical-Humanist Model
7. The Personal Development Model

The basic teaching model of De Cecco is Glaser's 1962 formulation of the instructional process: "(1) Instructional Objectives, (2) Entering Behavior, (3) Instructional Procedures, (4) Performance Assessment" (De Cecco, 1968, p. 11). The model for school learning (#3) is the work of John Carroll (1963). Models five, six and seven are considered to be "historical teaching models."

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Harris (1969), in a framework tied closely to learning theory, has suggested four "systems models" of teaching:

1. Stimulus-Response
2. Environmental Adaptation
3. Discovery
4. Verbalizing

The second model refers to teaching activities intended to help the learner interact with his external environment. Exploration of real things by students under the guidance of the teacher is the preferred mode of operation. The last framework, "verbalizing," is similar to De Cecco's "personal development" model. That is, the emphasis is on the students' acquiring "new insight, feelings of adequacy and autonomy" (p. 6). The task of the teacher is to question, to listen, to emphasize and to encourage.

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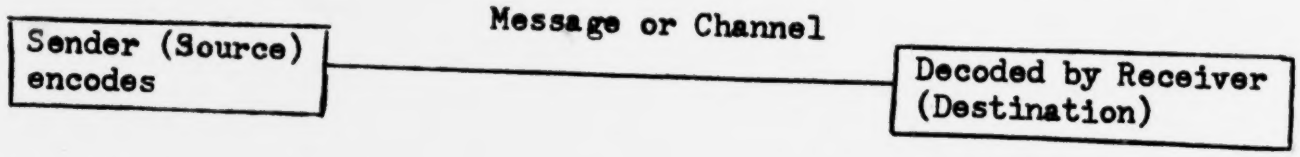
A volume entitled Teaching: Vantage Points for Study contains Hyman's (1968) seven observational frameworks:

1. Communications
2. Cognitive and Intellectual Behavior
3. Emotional Climate
4. Social Climate
5. Games
6. Aesthetics
7. Strategies

The "communications" viewpoint is essentially the process which, diagramed in its most fundamental aspect, looks like this:



The "games" vantage point is teaching considered in light of elements abstracted from the field of athletic games. "Aesthetics" as a model allows one to consider teaching "with the aid of such concepts as beauty, harmony, balance, rhythm, tempo, and form" (p. 329). Finally, the "strategies" viewpoint is a cognitively-oriented teaching method, which proceeds deliberately to achieve certain predetermined goals.

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Six approaches to teaching are identified by Macdonald (1965) in an article entitled "Myths About Instruction":

1. Learning Theory
2. Human Development
3. Structure of Disciplines
4. Modes of Inquiry
5. Interaction Analysis
6. Rational Decision-Making

Macdonald refers to the above six frameworks as "myths." They are extant in the literature, but too uncertain to be adequate as grounds for prescribing teaching practices. His point is that one cannot prescribe a particular teaching modus operandi according to any of the six conceptions because there is not available enough evidence to support such a prescription. The myth termed "modes of inquiry" relates to what scholars and investigators in a particular discipline do when they study their field, the prescription following that public school students should engage in the same activities (a prescription Macdonald rejects). The "rational decision-making" position is congruent with De Cecco's "basic teaching model" (see ii above).

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B. Othanel Smith (1963) identified three current "conceptions of instruction":

1. Stimulus-Response
2. Interaction
3. Eclecticism

Smith's "eclecticism" category results from borrowing " . . . from both the interactive (#2) and stimulus-response (#1) models and from clinical psychology, combining these with common-sense observations" (p. 295). His response to each of the above positions is negative--Smith maintains that more descriptive and analytical work should be done before prescribing methods.

Thelen (1966) presents a broad schema in which he views teaching as:

1. Personal inquiry
2. Group investigation
3. Reflective action
4. Skill development

The first three of these models are assumed to grow out of "three fundamental quests going on in the world of man." (p. 77). The fourth is a practical consideration and represents the mastery of basic learning, e.g., reading, writing, listening abilities, etc.

METHOD

The Major Question

The following is the question which the present paper purports to answer, at least partially: How can one classify prescriptions (recommended practices) for teaching given (1) the incalculable complexity of the phenomenon, and (2) the requirement that any category system must be at least minimally congruent with the reality it purports to order? The answer to this question, let it be noted, is not a theory of teaching,but a conceptual schema by which already existing views of teaching can be summarized. The posing of the question and the subsequent inquiry represent examples of the "macroanalytical approach" to thinking about teaching suggested by Hermanowicz (1969) recently.

The Taxonomic Notion

The attempt to answer the major question forces one to focus on a prior question, related to the major one: In order to classify prescriptions for teaching, what criteria ought to be established for use in comparing the various formulations? This appears, to the writer, to be a generally unasked

question by those who provide frameworks for viewing teaching. Their conceptions have little or no taxonomic aspect to them. The categories are a list of analogs--with no underlying or basal unifying theme. That is, each one of the members of a given set of models (e.g., Harris' "stimulus-response," "environmental adaptation," "discovery," and "verbalizing" conceptions) is basically independent of the other members, except for the common factor of their teaching-relatedness. There is not a dimensional notion (see below) associated with the above formulations.

The criteria established by which schemata can be compared should solve (or at least attempt to solve) what Gage (1969) calls "the problem of dimensionalization--the problem of finding ways to compare methods [frameworks or models of teaching in the present context] along basic underlying dimensions so that the differences between them can be more clearly identified . . . ." (p. 1450). The present conceptualization attempts to accomplish that end.

The Dimensions

The dimensions identified for use in the present formulation were adapted from Gordon (1968), although similar ideas are found in other writings (e.g., Loree, 1965, pp. 30-35). The dimensions represent the salient variables or characteristics which inhere in the teaching-learning situation. Presumably any prescription for teaching would make reference to these three elements and, in fact, the various formulations of teaching found in educational and psychological writing generally treat the dimensions, both explicitly and implicitly. The dimensions are (1) the learner, (2) the teaching-learning situation, and (3) the goal or outcome of teaching. Differences in approach among different prescriptions were discovered by putting each of the three dimensional characteristics in the form of a question and noting distinctions among the various answers given in the literature. The questions associated with each facet are, (1) the learner: What is the nature of the learner? (2) the teaching-learning

situation: How should teaching proceed? (3) the goal: What should be the outcome of teaching? See Figure 1.[illegible] paper).

One way to conceptualize the answers given to the above three questions is to establish a continuum between polar opposites and to identify positions (ranges of ansers considered as a single category) on that continuum. The impossibility of eliminating (at least at this stage of the inquiry) what Mehrabian (1968) termed "observer selectivity" is recognized. Such selectivity (p. 2) ". . . is an inherent aspect of initial attempts at the description of a novel, or as yet uninvestigated or unsystematized, set of phenomena." Perhaps a modicum of justification is conferred on the effort of this study by the same author's following observation (one word has been changed to relate the statement to the field of education): "The /educational/ field is so chaotic at present that all of our classificatory, organizational attempts are to be welcomed." (Mehrabian, 1968, p. 19).

A Note on Conceptual Models

The enterprise of conceptual ordering of real-life phenomena is risky. Concepts are clothed with words and words are tricky. They are so because the referent for them is not uniformly apprehended by those who read the words. The historic problem of discriminating among the referent, a human concept of that referent, and the term or symbol assigned to name the concept is a knotty one in any discipline (see Ogden and Richards, 1966, and Woodruff, 1961); in a field such as education where the referents are generally complex sequences of human behavior, the problem appears practically insoluble. Different referents are given the same name, the same referent (or an essentially similar one) is given different names, and the inconsistent and discrepant use of terms reveals that educational theorists hold widely differing concepts of the referential phenomena.

An arresting paragraph by Paul Brandwein (1966, p. 1) describes the dilemma alluded to above:

> We seem always to be seeking simplified editions of vast and complicated matters. We seek to make sense. We want, wherever it is intellectually possible, to bring all ideas under one roof. Our need to seek relationships, to see structure, is almost always appealing, often engaging, often dangerous; nevertheless, it is with us. We abstract, we infer, we generalize, we conceptualize, we hypothesize, we theorize. We search for some kind of handle to get at whatever we seek to understand. If we cannot strike through irrelevant detail, we may suppress the detail in order to come to grips with events which to our individual psychology seem orderly. In a word, we seek uniformity within diversity, and if a good sound theory is not available, we grasp at a "bold" hypothesis, or even a right-hand rule. Of course, the order may be only in our own minds; the price of seeking order may be self-deceit.

The purpose of this paper is not to develop a theory of teaching, nor even to evaluate existing systematic formulations about teaching. It does puport to provide a conceptual "handle" by means of which the controlling ideas and the people involved in theorizing about the teaching-learning situation may be apprehended and related in meaningful ways.

All attempts to order even a modest portion of the confusing array of material purporting to explain teaching are bound to have at least one (and probably <u>not</u> more) element in common: the suppression of some detail and emphasis of major concepts. Any schema evolved to aid comprehension of phenomenal complexity proceeds, by definition, it appears, to select certain features of the phenomena under scrutiny and ignore others. In a practical sense the "goodness" or helpfulness of any simplifying analogy or metaphor is determined by the perception of those who attempt to employ it. That is, validation of a model or paradigm is a process of comparing the model with one's perception of the reality it is supposed to represent. A conceptual model is not subject to relatively unambiguous validation the way that a testable hypothesis statement is.

Any representation of some part of reality must always, to some degree, be unfaithful to that reality; the task is always to obtain more utility from the simplifying nature of the representation than is lost by suppression of "extraneous" detail. Hyman (1968, p. 4) offers the following warning:

> But in spite of the help they offer, analogies also yield problems. The very path that leads to easy and quick understanding can also lead to error and confusion if we are not careful. To avoid trouble, we must be judicious in the use of analogies. . . . Most analogues have only partial correspondence with the original situation. Trouble arises when we accept and act upon complete correspondence when, in fact, it cannot be demonstrated. The analogy that does not hold completely is potentially misleading. We must drop it before we stretch it beyond its helpful limits. If not, we come to believe that certain relationships exist when they do not.

Nevertheless, E. G. Boring (1959, p. 385), writing of models in psychology, claimed, "a model, being only 'as-if,' does not need to be 'true' in the sense of being a stated relation between terms that have specific 'thinghood': the model summarizes data and that is its purpose." The proper question to ask of a model or other data-reducing analogy is not, "Is it ultimately true?", but "Is it heuristically true?" An investigator, in effect, questions himself--"Am I able to do things I believe ought to be done by employing this model (or whatever) that I would not be able to do without it?" Goodness of fit, not ultimate truth, is the modest goal of the model-builder.

RESULTS

The result of the inquiry, a continuum with four positions specified, is presented below and summarized in Figure 1.2 (at end of paper). The language used to describe the positions on each dimension is that used by the proponents of the particular position. Its use in the present paper is intended to be descriptive and not value-laden.

Considering the dimensionalization of each position to be uniform, that is, each position related similarly to the others on each dimension, allows one to represent the four identified positions visually as in Figure 1.2. This graphic representation is intended to show that prescriptions for teaching can be ordered--in a manner sufficiently isomorphic with the actual ideas from the literature to be valuable--into four main categories, each one representing a self-consistent set of answers to the three dimension questions posed above.

THE CONCEPTUAL MODEL

Position One: Teaching as Self-enhancement

I Overview

One of the most widely espoused of the themes for prescribing teaching practices may be labeled "teaching as self-enhancement." Typically the motif of this theme is its insistence on the determinative nature of the individual's perceptual field at any given moment. The theoretical construct of the perceived self is central in any formulation of this position. The question, "What is the nature of the learner?", is regarded by advocates of this metaphor as the key one of the three dimension questions. Principles relating to teaching method and desirable outcomes (dimensions two and three) are conceived as flowing from the central premise, viz., man is a free, responsible individual of infinite worth who grows by changing his perceptions of and attitudes toward his person- and object-environment.

Given the central importance of personal meaning (as contrasted with objective or non-personal meaning), this position emphasizes exploration and discovery by the individual in his learning acts. Such a position generally results in the condemnation of several conventional procedures of the public schools, e.g., highly structured learning environments or emphasis on student "ingestion" of prearranged material. Teaching prescriptions then take the form of recommending a freeing and expanding of opportunity for exploration and discovery of personal meaning. The enrichment of available resources, the enhancement of perceptual experiences are seen as necessary adjuncts to the teaching process. It is at this point that many ideas of those holding this position are at variance with those of the technological or contingency management frameworks treated in later sections. Those who see teaching as essentially strengthening the self-concept of the learner are repelled by the notion of highly-structured and typically cognitively-focused learning materi-

, as opposed to affectively-focused,

ials. They recommend a more fluid, open, and potentially changeable classroom ambience than that envisioned by adherents of the other three positions.

A. Dimension One: What is the Nature of the Learner?

A complex human being who interacts with others; a being capable of free choice, who is accountable for his actions and decisions; one for whom love, affection, and warmth are crucial at any time and in any circumstance; one who is in the process of becoming always.

B. Dimension Two: How Should Teaching Proceed?

Interaction among pupils and between teacher and pupil essential; teaching should ". . . focus on facilitating changes in ways the learner sees and feels about himself. . . ." (Perkins, 1957, p. 453); the proffered learning opportunity is a chance to explore mutually (teacher and pupil) its dimensions; teacher-provided structure of learning opportunities to be minimal; ". . . teaching a process of helping children explore and discover the personal meaning of events for them." (Combs, 1962a, p. 70).

C. Dimension Three: What Should be the Outcome of Teaching?

The enhancement of the self-concept; a "self-actualizing" person; a learner who is open to experience; one who recognizes and cherishes his autonomy and freedom; one who facilitates growth in others and consequently seeks intense interactive occasions with others; individuals conscious of the importance of affective goals in interpersonal relations.

II References: Teaching as Self-enhancement

(Complete bibliographic citations are given at end of this section. ~~paper~~. The author-date references below are intended to provide a kind of overview for those readers who are familiar with the authors cited)

Banaka (1970)
Bills (1963, 1967)
Brookover, Thomas, and Paterson (1964)
Buytendijk (1953)
Clark and Beatty (1967)
Combs (1962a, b, 1965)
Combs and Snygg (1959)
Drews (1966)
Jersild (1960)
Kelley (1962)
Maslow (1962)
Miller (1970)
Perkins (1957)
Rogers (1962, 1967a, b, 1969)
Snygg (1966)
Washington (1970)

Position Two: Teaching as Intellectual Achievement

I Overview

Prescribing for teaching when it is considered as intellectual achievement is a matter of asserting the primacy of the intellectual claim on the curriculum (see King and Brownell, 1966, chapter one). The essential and controlling nature of man's cognitive operations is asserted. This conception of teaching casts the teacher in the role of mentor or tutor, rather than in the role of therapist or technician (compare this idea with the corresponding ideas from the other three categories of the model).

Smith (1963a, p. 296) represents this view when he notes that although the teacher has certain personal obligations to his pupils, "still the determining factor in the teacher's behavior is not his understanding of the student but his comprehension of the subject matter and the demands which clear instruction in that subject matter make upon him." Thus self-enhancement as an end of the schooling process are not wholly neglected, but is considered subordinate to the learning of systematic, organized knowledge.

There are also differences between the present category and the other two categories following, "teaching as technology," and "teaching as the management of contingencies." The technologists of teaching give relatively less attention to the underlying structure of a subject area, with its attendant process of inquiry; instread, they concern themselves more with the programming sequence appropriate to a particular unit of instruction. Those who conceptualize teaching as a matter solely of stimulus and reinforcement of responses (the management of contingencies) also pay less attention to the concerns of the present category--structure, mode of inquiry, intellectual learning--and focus on observable behavioral modification via operant conditioning techniques.

A corollary to the concept of the primacy of the intellect is the centrality of the disciplines of knowledge to the enterprise of teaching. The clear separation of curriculum from instruction becomes difficult at this point. For example, Phenix, in an article entitled "The Use of the Disciplines as Curriculum Content" (1962), maintains that the disciplines of knowledge are at once subject-matter and vehicle for instruction. This is so because, according to Phenix (p. 273), " . . . the distinguishing mark of any discipline is that the knowledge which comprises it is instructive--that it is peculiarly suited for teaching and learning."

Another concept embedded in this category is the governing nature of the manner by which inquiry in a field is pursued. "Modes of inquiry" characteristic of a particular field are seen as determinative relative to the possibility of mastery of that particular subject. The contention is that the teaching enterprise must take into account the nature of the modes of inquiry when teaching patterns are prescribed. Schwab (1964) equates inquiry with investigation. He says (p. 5)

". . . it [inquiry] is a mode of investigation which rests on conceptual innovation, proceeds through uncertainty and failure, and eventuates in knowledge which is contingent, dubitable, and hard to come by." Assisting students to comprehend both the process of investigation which characterizes a given field of study, as well as the conclusions characteristic of that field of study is deemed important by proponents of the present category.

Yet another concept predominating in this view is that inquiring man is seen to be pre-eminently the symbolizing animal (see King and Brownell, 1966, chapter one). As a manipulator of symbols, man must be taught in such a way that his mastery of rational forms of decision-making is assured. Phenix (1962) considers the ability to deal with symbols the pre-eminent human characteristic, calling it (p. 275) the "index of intelligence." An education which fits man for handling symbols will find a central place for the disciplines of knowledge, ". . . for the disciplines are the intellect's systems of symbols and thought, the means by which men's minds master nature and grasp ideas" (King and Brownell, 1966, p. 24). This position does not equate schooling with education, but sees the former as contributing to the latter, which is the larger whole. Consequently schooling is focused and systematically organized and pursued.

Finally, teaching as intellectual achievement is characterized by the use of the vocabulary of classical learning, of the liberal arts, and of the Western philosophers. Those educators who profess to see a clear historical link between our society today and that of Greece in the fifth century B.C. will typically prescribe procedures for and outcomes of teaching based on their perceptions of the nature, and adequacy of vision provided by that period. (See for example, Hutchins, 1953, 1968; Koerner, 1959; King and Brownell, 1966).

An examination of the reform plans of several of the recent prominent critics of the public schools, i.e., Bestor, Koerner, Rickover, and others, reveals an emphasis on teaching as intellectual achievement. These critics' outraged cries against what they term "soft" pedagogy including a life-adjustment curriculum, usually includes some form of evidence demonstrating the lack of intellectual rigor, a de-emphasis of the importance of the acquisition of symbolic systems, and a generally hostile climate to scholarly attainment.

A. Dimension One: What is the Nature of the Learner?

"A neophyte in . . . the community of discourse" (King and Brownell, 1966, p. 121); ". . . the symbolizing animal. He reasons. He remembers. He reflects. He meditates. He imagines. He cultivates his mind. . . ." (King and Brownell, 1966, p. 20); an apprentice in the craft of Reason; one who increases his self-respect by augmenting his cognitive knowledge; a pupil who strives to master a discipline or body of content.

B. Dimension Two: How Should Teaching Proceed?

Concern with cognitive learnings; organization and hierarchy of content important; the teacher's comprehension of the subject mat-

ter the determining factor in classroom operations (Smith, 1963); "discipline centered rather than child or society centered." (Goodlad, 1966); ". . . curriculum is a planned series of encounters between a student and some selection of communities of discourse." (King and Brownell, 1966, p. 121); primarily verbal and logical (Smith, 1960).

C. Dimension Three: What Should be the Outcome of Teaching?

Meaningful verbal learning (Ausubel, 1967, 1969); individuals who have mastered a field of subject-matter; persons ". . . disciplined in symbolic behavior. . . ." (King and Brownell, 1966, p. 21); the development of intellect; understanding the structure of a discipline.

II References

Ausubel (1967, 1969)
Barzun (1959)
Bestor (1968)
Gage (1964)
Goodlad (1966)
Hutchins (1953, 1968)
King and Brownell (1966)
Koerner (1959)
Phenix (1962)
Ripple and Rockcastle (1964)
Schwab (1962, 1964)
Smith (1960, 1963, 1967)
Smith, M. (1966)
Wann (1962)

Position Three: Teaching as Technology

I Overview

Teaching as technology focuses primarily on the systematic application of principles and concepts to the educative process. The principles and concepts to be applied are those provided by behavioral science (Glaser, 1965a, 1966).

Some feeling for the domain carved out by the educational technologists is gained by a perusal of the following list of selected article titles from the journal, Educational Technology, volume eight (1968):

"Educational Technology as Instructional Design"
"A Cybernetic System Model for Occupational Education"
"Technology and Educational Planning"
"Components of a Cybernetic Instructional System"
"The Computer and Education"
"Media Technology and Teacher Education"
"Systems Approach? What Is It?"
"A Set of Procedures for the Planning of Instruction"
"Human Factors Engineering of Educational Systems"

Glaser (1965, p. 782) epitomizes the tendency of this category when he writes, "The array of concepts involved in the pre-instructional measurement of aptitudes, readinesses, and diagnostic measures of achievement must be systematized for theoretical development and for use in instructional design." (See also Heinich, 1966; Merrill, 1968).

Perhaps the single word that best captures the spirit of this category would be the adjective "systematic." No prescription for teaching which falls within this category is without at least some allusion to the need for rendering the act of instruction into its presumed components (rational, logical, and psychological) and systematically accounting for each one of these identified elements to produce the desired result, pupil learning, the only valid criterion of teaching. As one might expect, concepts of system engineering are prominent in prescriptions related to this position.

An applicative or engineering orientation, even though directed toward a human (as distinct from a material) enterprise, brings with it the vocabulary of physical processes. Predominant in the thinking that defines the view of teaching as technology is the notion of man-machine interaction. The learner should become a more efficient processor of data; "the brain of man /should/ be regarded as a . . . part of a knowledge retrieval system through which man can obtain access to the entire available system of coded knowledge." (Travers, 1968, p. 100).

There appear to be four closely-related concepts which underly a number of prescriptions which are offered in the educational literature of teaching as technology:

1) A faith in the relevancy and validity for teaching of the process and products of behavioral science research.

2) The view of teaching-learning as a reciprocal cause-effect relationship (for a contrary view--but within the technology framework--of this point, see Scandura, 1966).

3) A reductionistic view of the phenomena of teaching, i.e., the assumption that they can be separated profitable into constituent parts and examined element by element.

4) (Corollary to number three) A belief that teaching (or instruction, as it is usually called when conceived of as a technology) must be consciously designed, component by component. This corollary seems to lead into the field of programed instruction.

A. Dimension One: What is the Nature of the Learner?

An individual who processes information; one who can modify his responses if the environment is modified; a being capable of benefiting cognitively from systematic teaching; one whose terminal (end-of-instructional period) behavior in a formal instructional setting can be specified and altered through a step-by-step use of behavioral science-generated learning principles.

B. Dimension Two: How Should Teaching Proceed?

"The function of instruction is the control of the external conditions of the learning situation." (Gagne, 1967, p. 296); teaching a process-product dyad (Mitzel, 1970); through empirically-designed sequences of stimuli aimed at provoking uniform student responses; time and efficiency considered important; systems approach predominates; programming predominates; task analysis predominates.

C. Dimension Three: What Should be the Outcome of Teaching?

Changed response capabilities relative to the instructional task; persons who have mastered specified learning outcomes in (primarily) cognitive and psychomotor domains; exalts man doing, rather than man becoming; outcomes ought to be differentiated response capabilities within the learner; empirically validated learning is the true outcome of successful teaching.

II References

Anderson (1967)
Bugelski (1964)
Corey (1967)
De Cecco (1968)
Ericksen (1965)
Gagne (1965, 1967)
Glaser (1965a, b)
Heinich (1965, 1968)
Lumsdaine (1963, 1
Lumsdaine and Glaser (1960)
Mager (1962, 1967)
Merrill (1968)
Mitzel (1970)
Rothkopf (1968)
Ryans (1965)
Scandura (1966)
Smith and Smith (1966)
Travers (1966, 1968)
Twyford (1969)
Ullmer (1968)
Woodruff (1969)

Position Four: Teaching as the Management of Contingencies

I Overview

With this view of teaching, experimental science of human behavior comes into its own. The prevailing concept of the category is the extension of fundamental "laws" of learning to all forms of complex human behavior, including school learning.

This framework is not as widely shared among educators as the the other three identified. Nevertheless the educational implications of the view have been treated as fully perhaps as any of the other categories. In the view learning is considered central to an adequate understanding of the human organism. Basically all human behavior represents learning. Furthur, all learning is the result of the same fundamental process. Finally, more complex behavior (learning) is considered a function of the combination, integration, and interaction of simpler behaviors. The ultimate mechanisms responsible for human learning are the processes known as conditioning--

both classical (respondent) and instrumental (operant). Skinner (1968, p. 5) defines teaching as " . . . simply the arrangement of contingencies of reinforcement." Any time the organism learns something, the occasion is due precisely to the fact that stimulus properties and reinforcement contingencies were appropriate to increase the probability of occurrence of the particular something learned.

A primary characteristic of this view is the prominence of the reductionistic principle, i.e., that the ultimate facts of behavior are reducible to micro-level processes and mechanisms. Allied to this concept is the notion that the actions of persons are determinative, not one's interpretation of them in terms of mental state, e.g., motivated, apathetic, eager, rebellious, etc. The "emitted' responses of persons tells us all we need to know.

The governing mode of inquiry among those who adopt this view is that of experimental science. There exists a science of behavior--as precise for its purposes as astronomy is for its purposes--which allows us to " . . . develop a technology for routinely producing superior human beings. . . ." (Homme, et al., 1968, p. 431). The technology referred to is that of instrumental conditioning--managing the contingencies of reinforcement.

A. Dimension One: What is the Nature of the Learner?

A complex, responding organism; one whose behavior is determined by events outside of the organism itself; one capable of being conditioned to emit virtually any desired behavior: love, joy, etc.; one who can control his future by controlling his environment; one whose machine-like properties are salient (Skinner, 1953).

B. Dimension Two: How Should Teaching Proceed?

". . . Teaching is simply the arrangement of contingencies of reinforcement." (Skinner, 1968, p. 5); "arranging the environment so that one gets what one wants." (Homme, et al., 1968, p. 425); students' terminal behavior should be identified, stimulus conditions and reinforcement contingencies controlled, and the terminal behaviors installed. (A description of the operations of instrumental or operant conditioning would be appropriate here, but is omitted).

C. Dimension Three: What Should be the Outcome of Teaching?

Modified behavior patterns--predictable and stable; increased cognitive knowledge; a changed capability of learner response repertoire; practically any human behavior can be installed, thus any outcome desired could be achieved, given control of the stimulus and response patterns affecting the learner.

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Some Caveats

The titles given to the four positions or categories identified (see Figure 1.2) are not entirely felicitous--as with the abstracting process in general, naming a phenomenon reduces its quiddity. The labels are descriptive of the content of the positions (see Figure 1.2). They are terms drawn from the vocabulary of those espousing the principles of the various categories. These terms are not necessarily indicative of the most profound pedagogical aims which might be conceived by those who take the position. For example, a representative of the "contingency management" classification may be interested in enhancing the self-image of students as would a representative of the "self-enhancement" position; nevertheless, the former presumably would proceed, that is "instruct," in a radically different manner than the latter to achieve that end. The labels are intended to suggest emphases common to the range of answers associated with the three dimensional questions. They are not intended to create mutually exclusive category boundaries. The over-lap of the categories is representative of the phenomenal reality--as with any category system, positions merge into other positions and hard and fast classificatory rules cannot be adhered to with fidelity to reality.

The conception of teaching prescriptions depicted in Figure 1.2 does not represent all varieties of systematic thinking available to the researcher.

Further, it is not intended to suggest that all nuances of meaning and definition found in the writings assigned to each category are captured, either visually or verbally. Three factors were considered beofre making the decision to telescope the information from the three dimensions into one continuum, the viewpoints or positions on which are considered to have a taxonomic relationship each to the other: (1) the increased clarity of the conception; (2) the fact that within the various frameworks identified, different authors emphasize different dimension. For example, one writer, within the area designated as "technology," may emphasize the nature of the learner (dimension one), another, within the same area, may emphasize the instructional process (dimension two), and so on. They will both, however, prescribe in a manner consonant with the abstracted characteristics of the "technology" category. This differential "weighting" of dimensions within a category allows for some flexibility of assignment of many of the writers. To illustrate: the "technology" category may be found to prescribe for the process of teaching (dimension two) in a fairly consistent manner; a writer may then be said to represent the "technology" viewpoint when he recommends that teaching proceed in such manner, although he may say nothing directly about the nature of the learner (dimension one); (3) the logic of the thing--e.g., if one conceives of the learner as an externally-determined being, one who is not free in any existential sense, one would not, logically, advocate outcomes of teaching using the same language as those who view teaching as the facilitation of growth of a "free" being.(see Rogers and Skinner, 1956, and Bandura, 1961).

Validation of the Model

The validation (if that is even a useful term in the present context) of a classification system of the type presented herein is essentially a matter

of appealing to the literature. The result of such an appeal is a more or less extended resumè of prescriptions for teaching according as they are discovered throough asking the three dimension questions (see above, pp. 6-7) of the literature. This paper includes only a drastically abbreviated summary of the available material. For a more comprehensive treatment see the author's A Conceptual Model for Ordering Prescriptive Thought About Teaching (1970). Although only an outline-type of presentation of the positions is provided herein, an extensive set of references is included for each of the categories.

The writer knows of no way to clear himself objectively of all possible charges of slanted or biased reading of the relevant literature. In fact he entertains the notion that such assurance is not possible. In a sense any conceptual ordering of a complex phenomenon constitutes a subjectively biased rendering of the reality conceptualized. Therefore, to speak of anything like an "objective validation" of the proposed conceptual device seems to make little sense.

Summary and Implications

The conceptual model (including Figure 1.2) is intended to provide a representation--simplified from the complexity of the real-world phenomena--of the way educators (and, in large part, of the way educational psychologists) look at the enterprise called teaching. Thus the inquiry is both theoretical and descriptive. The study is theoretical because the formulation of conceptual categories from a series of concrete instances (whether of physical or verbal phenomena) is the process of abstraction--the defining characteristic of a theoretical undertaking. The study is descriptive because the model describes or presents phenomena without evaluation. The phenomena in this case

are the prescriptions for teaching enunciated by a number of educators.

The identification of a continuum with four specified positions obviously should not be considered as any form of ultimate step. It is an initial, tentative probe, a halting step toward greater inclusiveness and less ambiguity in our thinking about teaching.

Identified briefly below are nine possible directions that future theoretical inquiry could take, based on the conceptual model presented in this paper.

1. A theoretical study could be conducted into the relative value of the four categories of the model. The present study was descriptive, conceived as a necessary prior step to an evaluative study. The investigator could make explicit the value orientations held by each category and draw conclusions based on them.

2. An attack on the dimensional problem (Gage, 1969) could be directly relevant to the concerns of instructional theorizing. One of the basic difficulties in this connection is a lack of understanding of even how to frame the questions, the answers to which would reveal the nature and scope of the problem. Subsequent to those fundamental queries would be ones such as the following: Can dimensions be differentially weighted in terms of significance, or some other criterion? Are dimensions capable of being established at both a micro- and a macro-level? If they are, what advantages and disadvantages accrue from the use of one or the other?

3. Related to the study suggested above is the question, What strategies are available to a researcher in the attempt to relate conceptual categories prescribing teaching practices to each other? This question is prior to the question, What <u>are</u> the relations that prevail? In other words, one needs to identify what criteria apply when one attempts to establish relations

among conceptual categories. To the writer's knowledge, the nature of such criteria has not been investigated systematically as they relate to teaching.

4. Using Macdonald's (1967) criteria of "dominant themes," an investigation could be conducted into the relative dominance (or relevance) of the three themes, the pupil, the discipline, the society, in regard to the conceptual positions identified in this study. That there would exist sizeable differences among the three concerns relative to the categories appears certain.

5. The notion of "reliability" applies in a special way to a theoretical study such as the present one. The conceptual categories would be considered "reliable" if a number of other investigators, using the same dimensional questions as those used herein, were to examine the prescriptive literature on teaching and abstract the same (or essentially similar) constructs. Thus, a number of "replications" of the inquiry would yield informative data about the generalization potential of the categories, as well as about the influence of researcher predilection on the abstracting process.

6. On the basis of the present inquiry, the writer opines that dimension one, the nature of the learner, is crucial to the enterprise of instructional theorizing; perhaps it is the controlling concept for all prescriptive comment. An investigation into the assumptions about the dimension held by various theorists and the relations which hold between those assumptions and the prescriptions formulated by the theorists would be an inquiry of value.

7. Green (1968) has postulated a "teaching continuum," which, in part, moves from "conditioning" and "training" at one end, to "instructing" and "indoctrinating" toward the other. In what way do the categories of the model presented in this paper relate to Green's continuum? The answer to that question would illuminate both constructs.

8. Relationships prevail between the categories identified herein, on the one hand, and descriptions of teaching acquired through the use of analytic observation systems, on the other. An examination of correspondences and differences between the two could be a profitable inquiry. One way to approach this question would be first, to conceptualize criteria for distinguishing various facets, then to apply one or more standard analytic instrucments to on-going classroom teaching and finally, to apply the criteria to the results. A second approach would be to construct classroom observation instruments which reflect the categories as abstracted and observe classroom teaching through them.

9. The matrix of this study is largely the psychological studies. A similar investigation, i.e., the identification of frameworks for viewing teaching, could be undertaken using philosophic concepts and models as the source of the prescriptive comment. For example, the semantic problems inherent in the development of a conceptual model from extant literature lend themselves to a treatment via analytical philosophy (see, for example, Macmillan and Nelson, 1968).

FIGURE 1.1

THREE DIMENSIONS ALONG WHICH PRESCRIPTIONS FOR TEACHING CAN BE ORDERED

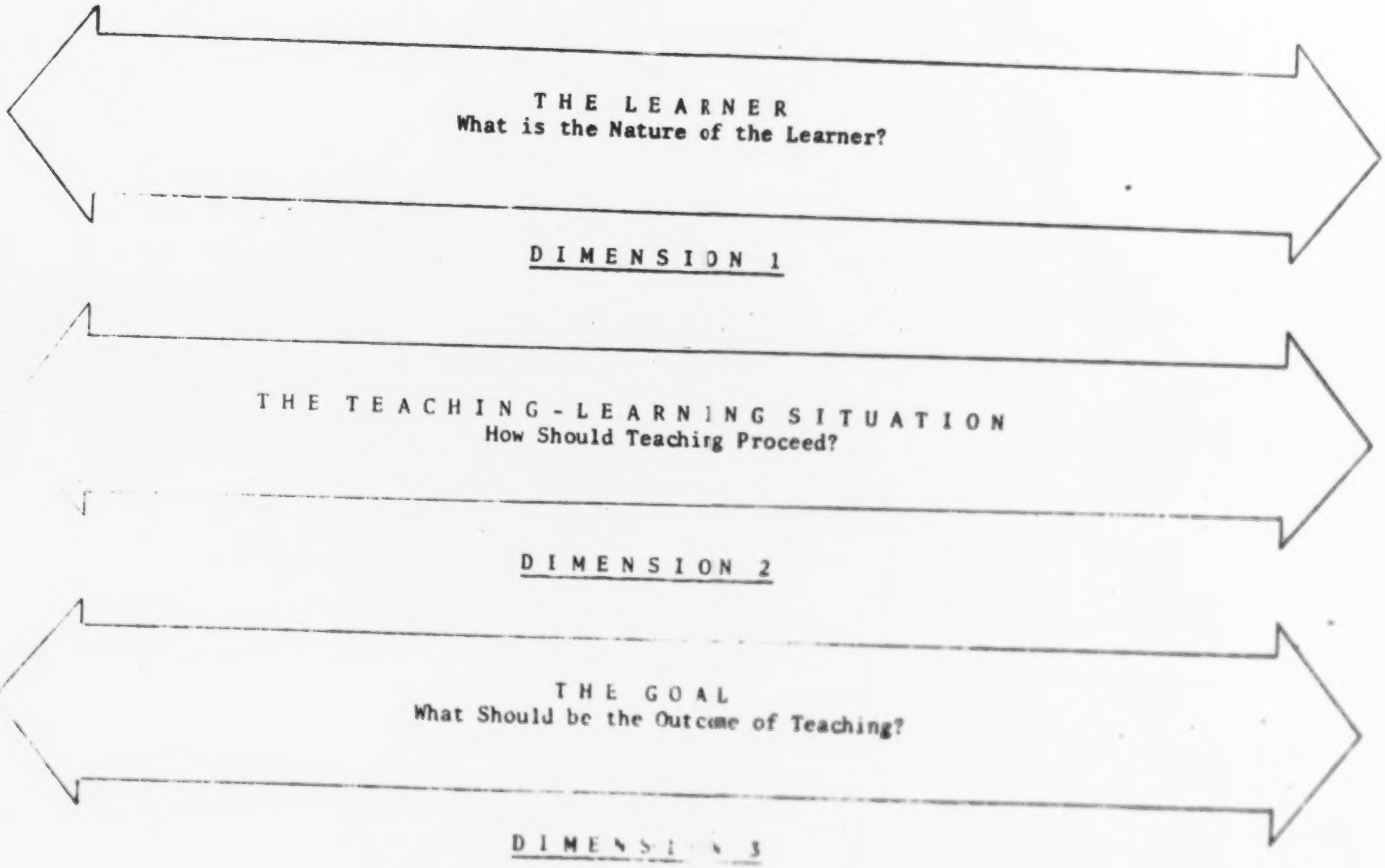
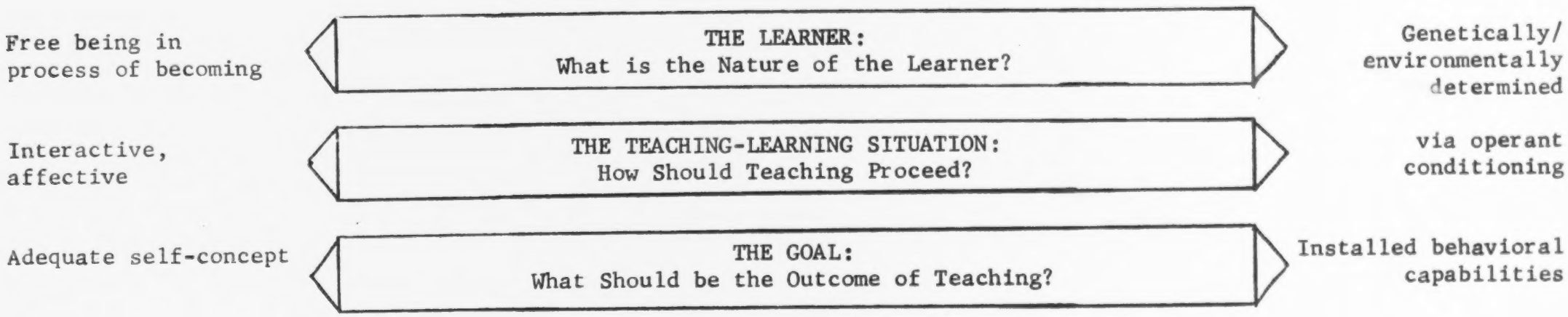
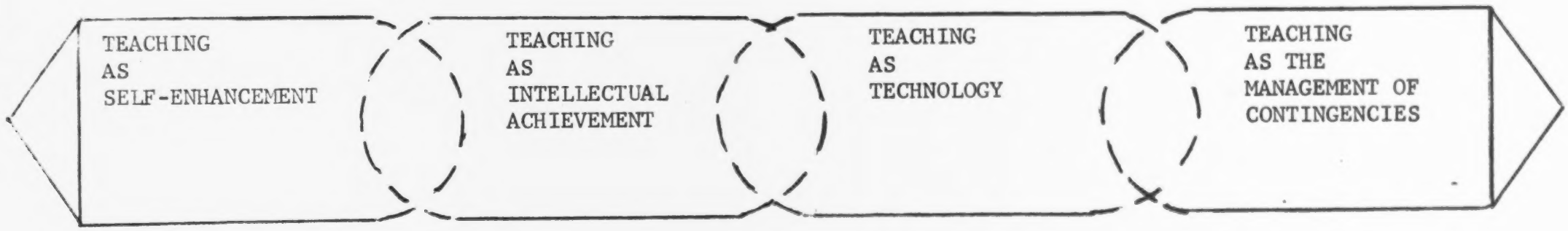


Figure 1.2

A CONCEPTUAL ORDERING OF PRESCRIPTIONS
FOR TEACHING

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TEACHING AS TECHNOLOGY
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